Answers

(1) 24

Step 1

This solid shape is made of several small cubes:

- Number of cubes forming the width of the shape = 2
- Number of cubes forming the depth of the shape = 4
- Number of cubes forming the height of shape = 3

Step 2

Number of cubes required to make top part of solid shape = 2 × 4 = 8

Step 3

Since, height of the given shape is 3 small cubes, there will be 3 such layers.
Therefore, total number of small cubes required to make the given shape = 8 × 3 = 24

(2) 53

Step 1

It can be noticed that in every successive pattern, one orange is added at the top of each vertical column and one orange is added to the row at the bottom.
Therefore, in every successive pattern 3 new oranges are added.

Step 2

Number of oranges in Pattern 1 = 5
Number of oranges in Pattern 2 = 5 + 3 = 8
Number of oranges in Pattern 3 = 5 + 3 + 3 = 11
Number of oranges in Pattern 4 = 5 + 3 + 3 + 3 = 14
..... and so on.

Step 3

Similarly, number of oranges in Pattern 17 = 5 + (3 × 16) = 53

(3) 20

Step 1

The first statement tells us that one carton contains 6 muffins.

Step 2

Therefore, 2 cartons contain 2 × 6 = 12 muffins.

Step 3

The second statement tells us that one jar contains 8 strawberries.

Step 4

Therefore, 4 jars contain 4 × 8 = 32 strawberries.

Step 5

Thus, the difference between the number of strawberries and muffins = 32 - 12 = 20

(4) 44

Step 1

From first expression we have: ☁ + ☁ + ☁ + ☁ = 80

or 4☁ = 80

On dividing both sides by 4, we get: ☁ = 20

Step 2

From second expression we have: ☁ -9□ = □

or ☁ = □ + 9□

or ☁ = 10□

We can replace ☁ = 20 as we found out in step 1:

20 = 10□

Dividing each side by 10, we get □ = 2

Step 3

We now have the value of both the symbols, let us put in the third expression to find its value:

☁+☁ + □ + □

= 2☁ + 2□

= 2 × 20 + 2 × 2

= 40 + 4

= 44

Step 4

Hence, the value of ☁+☁ + □ + □ is **44**.

(5) 4 kg

Step 1

The first addition statement is:

 = 6 kg

This statement means that whenever we see the above two fruits together, we can write 6 kg in place of them.

Step 2

The second addition statement is:

 = 4 kg

This statement means that whenever we see the above two fruits together, we can write 4 kg in place of them.

Step 3

The third addition statement is:

 = 22 kg

There are many fruits in the above statement. Let us try to decrease the number of fruits in the above statement by replacing fruits with their weights from steps 1 and 2:

1. Remove one  and one  from the above statement and use the number 4 kg in its place (Using the addition statement in step 2). The above statement becomes:
   4 +  = 22 kg
2. Remove one  and one  from the above statement and use the number 6 kg in its place (Using the addition statement in step 1). The above statement becomes 6 + 4 +  = 22 kg

Now we are left with only one fruit in the above statement. From here, we can find its weight.

Step 4

The statement we arrived at in step 3 can be written as:

10 +  = 22 kg

We know the sum (22 kg) and one addend (10). The other addend can be found by subtracting the known addend from the sum:
Unknown addend = Sum – Known addend

 = 22 – 10 = 12 kg

Step 5

Weight of 3  = 12 kg

Weight of one  will be:

$$\frac{12}{3} = 4 \text{ kg}$$

(6) 35

Step 1

Let us first try to find the value of each one of  ,  ,  and  .

Step 2

Given,  = 4

Since, the value of 4  is 4.

The value of  will be = $\frac{4}{4}$ = 1

Step 3

Next we are told:

 = 18

We can use the above equation to find the value of  .

We know  = 1

So,  = 2 × 1 = 2

We can now say,

 + 2 = 18

,or  = 18 - 2 = 16

Since, the value of 4  = 16

The value of  will be = $\frac{16}{4}$ = 4

Step 4

Similarly calculating the values of  and  .

We have,

 = 4 and  = 2

Step 5

Now, it is easy to find the value of  by substituting the value of each shape found above.

= 3  + 3  + 4  + 2 

= 3 × 1 + 3 × 4 + 4 × 4 + 2 × 2

= 3 + 12 + 16 + 4 (Remember to do all multiplications before doing additions to make sure your answer is right!)

= 35

(7) €51

Step 1

From 1st equation, we can see that value of 4 pineapples is €56.

Therefore, value of one pineapple = $\frac{56}{4}$ = €14

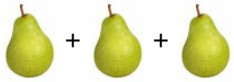
Step 2

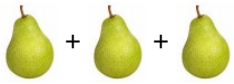
From 2nd equation we can now find the value of a pear as follows:

 = €14 + 3 = €17

Step 3

Now, we can find value of 3 pears:

 = €3 × 17

 = €51

(8) 8 days

Step 1

The frog first climbs up by 2 m, and falls back by 1 m. On the first day it climbs, 2 - 1 = 1 m.

Step 2

In the next few days that follow, it climbs up the same height. We can understand that for the first 7 days it will climb up 7 × 1 = 7 m.

Step 3

The next day when it climbs up by 2 m, it will come out of the ditch since 7 + 2 = 9 m. Once it comes out of the ditch, there is no question of falling back by 1 meter on the last day. Hence, it reaches the top in 8 days.

(9) **a.** In the first two weeks Oksana drew fewer paintings than Marek.

Step 1

Let us go by the options.

Step 2

Option a: In the first two weeks, Oksana drew 5 + 3 = 8 paintings, while Marek drew 6 + 1 = 7 paintings. This means Oksana drew more paintings than Marek. Hence, the given statement is false.

Step 3

Option b: In the first and last week together, Oksana drew 5 + 9 = 14 paintings, while Marek drew 6 + 10 = 16 paintings. This means Oksana drew fewer paintings than Marek.Hence, the given statement is true.

Step 4

Option c: In 4 weeks, Oksana drew 5 + 3 + 4 + 9 = 21 paintings, while Marek drew 6 + 1 + 4 + 10 = 21 paintings. This means Oksana and Marek drew the same number of paintings. Hence,the given statement is true.

Step 5

Option d: In the last two weeks, Oksana drew 9 + 4 = 13 paintings, while Marek drew 10 + 4 = 14 paintings. This means Oksana drew fewer paintings than Marek.Hence, the given statement is true.

Step 6

Hence, statement **a** is not true.

(10) d.

Step 1

We can see that in each successive picture, the triangle is rotating clock-wise.

Step 2

Similarly, the cloud is also rotating clock-wise.

Step 3

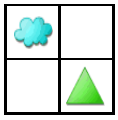
In the last picture, the triangle is at the top-right. Therefore in the next picture, it should be at the bottom-right.

Step 4

Similarly, in last picture the cloud is at the bottom-left. Therefore in the next picture, it should be at the top-left.

Step 5

Therefore, the next picture will be as follows:



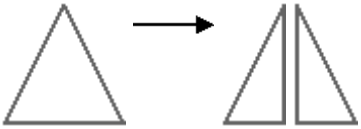
(11) b.

Step 1

A rectangle and an isosceles triangle can be used to create this figure.

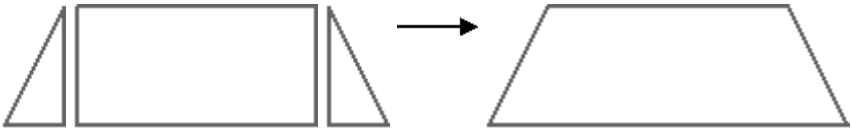
Step 2

As given in question we can cut the shapes. Let us cut the triangle as follows:



Step 3

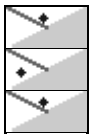
Now, we can add these triangles to the rectangle as shown below:



Step 4

Therefore, following shapes can be used to create this shape.

(12) c.



Step 1

If you observe, there are two types of tiles.

- One with the black dot below the line.
- One with the black dot above the line.

Step 2

From the given pattern we can see that the type of tile changes as we go from left to right or from top to bottom.

Step 3

In 1st row, the tile adjacent to the missing tile has black dot below the line, so the missing tile should have the black dot above the line.

Step 4

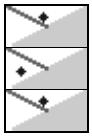
In 2nd row, the tile adjacent to the missing tile has black dot above the line, so the missing tile should have the black dot below the line.

Step 5

In 3rd row, the tile adjacent to the missing tile has black dot below the line, so the missing tile should have the black dot above the line.

Step 6

Therefore, the missing column is:



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(13) b. pineapples

Step 1

Let us draw a table to represent the fruits' name and quantity with the help of the bar chart.

Fruit's name	Fruit's quantity
Apple	30
Orange	70
Pear	20
Pomegranate	50
Guava	40
Pineapple	60
Plum	10

Step 2

From the above table, we notice that the number of oranges in the shop = 70
The number of pineapples in the shop = 60

Step 3

Now, the difference between the number of oranges and pineapples in the shop = 70 - 60 = 10
Therefore, we can say that there are **10** more oranges than pineapples.

(14) a. 60

Step 1

Let us draw a table representing the fruits' name and quantity with the help of the given bar chart.

Fruit's name	Fruit's quantity
Orange	40
Pear	20
Banana	10
Mango	60
Pineapple	30
Plum	70
Peach	50

Step 2

From the table, we notice that the number of bananas in the shop = 10
The number of plums in the shop = 70

Step 3

Now, the difference between the number of bananas and plums in the shop = 70 - 10 = 60
Hence, we can say that there are **60** less bananas than plums.

(15) **b.** 1000 ones

Step 1

Let us find the actual values of all the options.

Step 2

Option a: 100 hundreds = 100 × 100 = 10000 ones

Step 3

Option b: 1000 ones = 1000 × 1 = 1000 ones

Step 4

Option c: 10 thousands = 10 × 1000 = 10000 ones

Step 5

Option d: 1000 tens = 1000 × 10 = 10000 ones

Step 6

We can see that the option **b** is different from the others.